

Clean Version of Claims

1. A method for removing contaminants from flat media carriers, comprising the steps of:

loading the carriers onto a rotor within a flat media carrier cleaning machine;

spinning the rotor;

spraying a water/surfactant mixture onto the carriers via an inlet line by the steps of:

injecting water into the inlet line,

measuring the flow of water entering the inlet line,

pumping surfactant from a storage vessel into the inlet line using a flow metering pump,

mixing the surfactant and water to obtain a surfactant/water mixture,

setting flow rate of the flow metering pump to achieve a desired concentration of surfactant for the surfactant/water mixture.

2. A method according to Claim 1 further comprising the steps of

discontinuing pumping surfactant;

rinsing the carriers by spraying the carriers only with water.

3. A method according to Claim 2 further comprising the steps of

discontinuing injecting of water into the inlet line;

drying the carriers by spraying the carriers with a dry gas.

4. A method according to Claim 4 wherein the dry gas is selected from the group consisting of: nitrogen and compressed air.

5. A method according to Claim 1 wherein the water comprises de-ionized water.

6. A method according to Claim 1 further comprising the step of spinning the rotor at from 1-50 rpm while spraying the mixture toward the carriers.

7. A method according to Claim 1 further comprising the step of adjusting flow rate of surfactant being pumped into the inlet line by adjusting operation of the metering pump.

8. A method according to Claim 1 wherein the surfactant and water are injected into the inlet line via and under the control of a mixing control valve.

---

9. (Amended) An apparatus for cleaning flat media carriers, comprising:

63 a rotor rotatably mounted within a chamber;

an array of nozzles arranged to spray fluid onto a media carrier on the rotor;

a control valve connected by a fluid line to one or more of the nozzles;

a water inlet line for providing water to the control valve;

a detergent source;

A3  
Control  
a detergent injection line connecting the detergent source to the control valve; and

a metering pump in the detergent injection line for pumping detergent from the detergent source to the control valve at a controllable pumping rate.

---

10. An apparatus according to Claim 9 further comprising a housing around the chamber.

A4  
11. (Amended) An apparatus according to Claim 9 further comprising a boost pump connected to the water source for providing a desired inlet water pressure to the water inlet line.

---

12. (Canceled)

A5  
13. (Amended) An apparatus according to Claim 9 further comprising a detergent return line connected between the detergent injection line and the detergent source for providing a return path for detergent back to the detergent source.

14. (Amended) An apparatus according to Claim 9 further comprising a recirculation line connected between the water inlet line and a water source for providing a recirculation path for water back to the water source.

15. (Amended) An apparatus according to Claim 9 wherein the control valve comprises a mixing control valve for mixing the water and detergent.

16. (Amended) An apparatus for cleaning media carriers, comprising:

a rotor rotatably mounted within a chamber;

a spray manifold having nozzles disposed in the chamber and arranged to spray fluid towards the rotor;

a control valve connected by a fluid line to the spray manifold;

a water inlet line for providing water to the control valve;

a detergent source;

a detergent injection line connecting the detergent source to the control valve;

a metering pump associated with the detergent injection line; and

means for controlling pumping rate of the metering pump to produce a desired detergent concentration in the detergent/water mixture provided to the spray manifold.

17. (Amended) An apparatus according to Claim 16 further comprising a flow meter associated with the water inlet line for measuring a flow rate of water provided to the control valve.

18. (Amended) An apparatus according to Claim 16 wherein the control valve comprises a mixing control valve for mixing the detergent and the water.

19. (Amended) An apparatus according to Claim 16 further comprising a detergent return line connected between the detergent injection line proximate the control valve and the detergent source.

20. (Amended) An apparatus according to Claim 16 further comprising a recirculation line connected between the water inlet

45  
Control

line proximate the control valve and a water source for providing a recirculation path for water back to the water source.

---

21. (Canceled)

---

46

22. (Amended) An apparatus according to Claim 16 wherein the metering pump comprises a positive displacement diaphragm pump, and wherein said means for controlling a pumping rate of the metering pump comprises means for adjusting pumping speed.

---

23. (Amended) An apparatus according to Claim 22 wherein said means for controlling pumping rate of the metering pump further comprises means for adjusting pump stroke length.

---